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Consumer Credit and Household Financial Vulnerability

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Abstract: With the opening up of China's financial market and the expansion of consumer credit scale, the problem of household financial vulnerability has become increasingly prominent, constantly impacting the financial stability of households and society. This study is based on panel data from the China Household Finance Survey (CHFS) in 2017 and 2019, and constructs a univariate linear regression model. Combining the panel data model and instrumental variable method, it empirically tests the impact mechanism and heterogeneity characteristics of consumer credit on household financial vulnerability. Research has found that consumer credit significantly exacerbates household financial vulnerability, mainly through two pathways of debt burden accumulation and venture capital expansion; Heterogeneity analysis shows that high human capital and high-income households are less negatively affected by consumer credit, while short-term credit can alleviate liquidity constraints, but the long-term debt spiral effect is significant. Research suggests that families should plan their credit use reasonably, financial institutions need to strengthen risk assessment, and the government should guide the healthy development of consumer credit to enhance household financial resilience.

Keywords: Consumer credit, household financial vulnerability, panel data model, debt burden, venture capital.

1. Introduction

Family financial vulnerability refers to the situation where a household is unable to maintain a basic standard of living or cope with sudden expenditures due to a lack of sufficient financial buffer when facing economic shocks. With the high-quality development of the economy and the adjustment of the socio-economic structure, the financial situation of ordinary households will change due to changes in their income and expenditure structure. Among them, consumer credit is an important factor in the income and expenditure structure. From the perspective of behavioral economics, according to the psychological account rule, consumer credit reduces the psychological burden of consumers by decomposing large expenditures into small installment payments, thereby encouraging more consumption. This fully proves its important role in influencing residents' consumption behavior. In recent years, with economic growth and industrial upgrading, some traditional industries have faced transformation pressure, and the iteration of skill based industries has accelerated. The stability and growth of a large number of residents' incomes have been affected, resulting in a decrease in income and a demand within households to maintain their current status. Therefore, it is necessary to maintain living standards through short-term small-scale consumer loans; From the expenditure

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perspective, urban residents are facing high living costs and consumption pressure, especially in areas such as housing, education, and healthcare where spending continues to increase. Residents alleviate their expenditure pressure by borrowing consumer credit, which has become an important source of income and expenditure imbalance for households. This has led to an increase in debt leverage and affected the financial situation of households. Therefore, consumer credit increases household financial vulnerability. According to data from Ant Group, the penetration rate of installment consumption among the post-90s generation exceeds 80%, with a median monthly payment to income ratio of 35%. However, there are hidden risks behind this convenience: the upgrading of industrial structure has led to intensified income fluctuations for traditional industry workers, and the rigid repayment requirements of consumer credit have formed a sharp contradiction with income instability. In 2022, the leverage ratio of China's resident sector climbed to 62.3% (BIS data), and the debt/disposable income ratio reached 137% (Shanghai University of Finance and Economics, 2023), far exceeding the 95% of American households (Federal Reserve, Q3 2023). The data confirms the seriousness of debt accumulation - the balance of consumer credit has surged from 19 trillion in 2015 to 57 trillion in 2023, with a compound annual growth rate of 14.8%, of which the growth rate during the Internet finance outbreak in 2015-2017 exceeded 25%. Although the growth rate fell back after the tightening of supervision, the stock scale continues to expand.

With the gradual opening up of China's financial market and the continuous enrichment of financial products, the scale of consumer credit continues to expand, making it indispensable in the modern financial system. It not only helps residents meet their consumption needs in advance and smooth out household consumption fluctuations, but also becomes an important component of household financial expenditures. On the one hand, with the development of the economy, ordinary families are facing changes in the employment environment. As the majority of residents' income comes from labor, changes in the employment environment will lead to changes, which will encourage residents to use small consumer loans, destroy the original expenditure structure, and accumulate into more serious family financial problems. As a result, the degree of family financial vulnerability will increase; On the other hand, credit provides corresponding financial support for consumer groups and conditions for consumers to improve their consumption level. Therefore, the relationship between consumer credit and household financial vulnerability is of great significance, which helps ordinary households to plan financial expenditures reasonably based on their income, adjust their income and expenditure structure in a timely manner, and at the same time, help households identify and prevent credit risks, enhance their financial resilience, and respond to financial risks and sudden financial crises; At the same time, financial institutions can better evaluate the credit level and affordability of borrowers in all aspects, reduce non-performing loan rates, and develop corresponding wealth management products based on the financial situation of different families, explore the family wealth management market, and provide consumers with reliable wealth management solutions; For the government, this study can help formulate reasonable financial and market regulatory policies, guide healthy growth of consumer credit, and promote sustainable economic development. From a theoretical perspective, the impact of consumer credit on household financial vulnerability is mainly reflected in three aspects: credit risk management, household asset allocation, and the moderating effect of macroeconomic environment. In terms of credit risk management, reasonable use of consumer credit by households and timely repayment can improve credit ratings, reduce the difficulty of obtaining financial services in the future, and thus reduce financial vulnerability. On the contrary, if households are unable to effectively manage consumer credit and experience delinquency or default, it will lead to a decrease in credit scores, increase the difficulty of obtaining credit in the future, and further deteriorate their financial situation. Mian and Sufi believe that if households can plan the use of consumer credit reasonably and repay on time, they can not only maintain their current consumption level, but also improve their credit rating, create

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favorable conditions for obtaining more financial services in the future, and thus reduce financial vulnerability in the long run [1]. In terms of consumer credit and household asset allocation, consumer credit encourages households to adjust their asset structure, increase the proportion of risky asset investments in the hope of obtaining higher returns to repay debts and improve living standards. However, this asset allocation adjustment comes with higher risks, and once the investment fails, households may face greater financial losses, increasing their financial vulnerability. Andersen et al. attributed the delay in mortgage refinancing to the psychological cost of suppressing refinancing until the incentive measures were strong enough; And behavior, which may be attributed to the cost of information collection, reduces the likelihood of households refinancing per unit time under any incentives [2]. However, this adjustment of asset allocation is also accompanied by higher risks. Once the investment fails, households may face greater financial losses, and financial vulnerability increases accordingly. The macroeconomic environment plays a moderating role in the impact of consumer credit on household financial vulnerability. When the economy is prosperous, the expectation of household income growth is optimistic, and the use of consumer credit can improve consumption and quality of life. Moreover, households have strong repayment ability and low financial vulnerability. During an economic recession, as unemployment rates rise and household incomes decrease, consumer credit may become a burden on households, exacerbating financial fragility.

At present, there are abundant research literature and data in the fields of consumer credit and household financial vulnerability, but there are relatively few studies that integrate consumer credit and household financial vulnerability into the same system for analysis. Yang et al. found that an increase in household debt can suppress the growth of household consumption, exacerbate liquidity constraints and financial fragility of households [3]; However, the correlation between consumer credit and the impact on household financial vulnerability, as well as the combined effects of the two, are not yet fully studied in academia. At the same time, the existing literature often ignores the research on the negative behavior of consumer credit on consumer behavior. The dominant literature research is mainly about the promotion of consumer credit on the development of the consumer market. The research field involves less research, which is worth further discussion to avoid the large-scale consumption foam phenomenon in the consumer market caused by credit easing. In response to the issues with existing literature, we have made the following improvements to address potential problems in this article: In terms of data, the existing literature uses economic information such as credit card loans, household income, assets, and consumption expenditures, as well as household demographic characteristics such as gender, age, education, and health status [4]. And in our article, we consider the impact of variables such as pension security and education level on consumers' adoption of consumer credit, so we use them as one of the control variables for consumer credit research. In terms of model construction, we use basic linear regression models as the basic model and panel data models and other basic data statistical models as the research models, which help to study the fundamental and universal problems of the problem. The panel data model can control individual benefits and time benefits, and is more suitable for analyzing the dynamic changes and macro impacts of vulnerability issues.

In summary, we believe that the innovation of this article is as follows: firstly, the innovation of the panel data model: by constructing a panel data model, it can capture the changes in household financial status over time, as well as the impact of consumer credit on household financial vulnerability at different time points. This dynamic analysis helps to reveal the differences between the long-term and short-term effects of consumer credit. Secondly, from the perspective of comprehensive impact: We not only focus on the direct impact of consumer credit on household finance, but also deeply analyze its indirect impact on household consumption behavior and financial decision-making, as well as the various factors that affect household financial decision-making, such

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as the degree of dependence on consumer credit by families with different educational levels. This comprehensive perspective helps to have a more comprehensive understanding of the role of consumer credit in household finance.

Based on the above background, this article uses statistical analysis and comparative analysis methods to study consumer credit and household property vulnerability as a three-dimensional framework, which helps to form a systematic and holistic theoretical system. It is hoped that this will supplement the existing research system. The contribution of this article lies in the following aspects: firstly, searching for cases related to the impact of consumer credit on residents' consumption, collecting relevant data to explore the impact of the former on the latter, and then the impact on household finance; Secondly, we will delve into the interactive relationship between consumer credit and household finance, as well as the impact of this relationship on household financial vulnerability, in order to provide reference for household wealth management and policy-making.

2. Literature review and hypothesis proposal

In recent years, the exploration of the fields related to consumer credit and household financial vulnerability has gradually deepened, and the conceptual research on consumer credit and household financial vulnerability has gradually increased.

2.1. The positive impact of consumer credit on household finances

In existing literature, it has been found that some scholars believe that consumer credit can have a positive impact on household finances, such as playing an important role in promoting human capital investment. Banerjee and Duflo's research in countries such as India found that small-scale consumer credit (such as purchasing sewing machines and agricultural tools) helps poor families break through the threshold of production materials and achieve income growth [5]. Lochner and Monge Naranjo pointed out that student loans significantly increase the long-term income potential of families and reduce the risk of intergenerational poverty by supporting higher education [6]. In terms of consumer spending, Modigliani and Brumberg believe that consumer credit, as an important financial tool, aims to help households smooth consumption and cope with liquidity constraints [7]. Agarwal et al. found that short-term credit provided by credit cards can help families cope with sudden expenses such as medical costs, avoiding being forced to sell assets or borrow high interest loans [8]. Consumer credit can reduce financial vulnerability by easing liquidity constraints, improving consumption capacity, and enhancing households' ability to cope with short-term shocks [9]. In terms of experimental research, Karlan and Zinman's study, through methods such as randomized controlled trials (RCTs), has shown that consumer credit can significantly enhance households' consumption ability, especially in areas such as large-scale consumption (such as buying a house or car) and education, healthcare, etc. [10]. In terms of improving financial resilience, Bhutan et al. have demonstrated through US data that reasonable credit card usage can accumulate credit records and reduce future borrowing costs (such as mortgage rates) [11].

H1: The short-term use of consumer credit can reduce household financial vulnerability.

2.2. The negative impact of consumer credit on household finances

Some scholars have put forward opposite views, believing that it will bring some negative impacts. In terms of consumer interest rates, excessive reliance on consumer credit may lead to excessive household debt burden and increased financial risks, especially when interest rates rise or income decreases [12]. The low interest rate environment and increased renegotiation of mortgage loans can help alleviate household debt sustainability issues, thereby reducing financial vulnerability. The expansion of consumer credit may result in higher debt service costs for households, but this impact

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is partially offset by low interest rates [13]. The high or low interest rates of consumer credit have different impacts on consumers of different income levels. Lower income consumers are more sensitive to changes in interest rates because they typically have less financial reserves and struggle to cope with the additional burden of high interest rates. In a high interest rate environment, the credit behavior of low-income groups may be greatly restricted, thereby affecting their consumption ability. In terms of experimental research, by studying housing prices, net worth based lending, and household leverage crisis in the United States, it was found that excessive use of consumer credit may also lead to increased household debt burden, thereby affecting their financial stability [14]. Kumhof and Rancière have demonstrated through their model that increasing household debt inequality may lead to economic vulnerability [15]. Consumers with financial fragility are more likely to make poor financial choices and are more susceptible to financial losses when financial service providers fail to provide appropriate levels of care. In addition, the use of consumer credit is also influenced by factors such as household income level, financial literacy, and cultural background [16].

H2: Long term use of consumer credit will exacerbate household financial vulnerability.

In summary, we have decided to conduct in-depth research on the relationship between consumer credit and household financial vulnerability, explore the impact of consumer credit on household finance, and fill the current gap in literature research.

3. Research method

3.1. The resource of data

The data used in this article comes from panel data consisting of the fourth round of survey data obtained from the China Household Financial Survey (CHFS) in 2017 and the fourth round of survey data obtained in 2019. They were merged into mixed cross-sectional data, and after cleaning and removing sample households with missing key variables, 36433 households were finally obtained.

3.2. Variable definition

This study breaks through the limitations of traditional single dimensional vulnerability measurement and uses the entropy method to construct a comprehensive indicator system covering the number of months of liquidity coverage, default risk, and savings rate. Compared with Chaudhuri et al.'s vulnerability measurement based on consumption volatility [17], this method objectively reflects the nonlinear relationships of various dimensions through information entropy weighting, effectively capturing the risk transmission path of household financial systems. Wen et al.'s vulnerability decomposition study based on CFPS data pointed out that liquidity constraints and debt pressure are the core driving factors of rural household vulnerability [18]. This study further incorporates urban households into the analysis framework and enhances the dynamic explanatory power of the measurement through multidimensional indicator fusion. Literature shows that existing vulnerability studies mostly focus on income fluctuations or consumption smoothing, while this study is the first to include liquidity solvency and active savings behavior in the indicator system, which is more in line with the financial characteristics of Chinese households with "high debt and low savings".

3.2.1. Core explanatory variable: Expansion of the mechanism of consumer credit

The design of consumer credit variables centered on credit card usage inherits and expands the credit card measurement framework of Song et al., while incorporating new consumption scenarios such as installment payments [19]. Empirical research by Yao et al. has shown that social networks reduce household financial vulnerability by alleviating liquidity constraints, while credit cards, as formal financial instruments, may play a role through similar mechanisms [20]. Unlike the path revealed by

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Song et al. of "increasing the number of children → rising child rearing costs → increasing vulnerability" [19], consumer credit may affect vulnerability through a two-way effect of short-term liquidity replenishment and long-term debt accumulation, and this complex mechanism needs to be controlled for endogeneity through instrumental variable methods. Existing literature often focuses on credit availability, while this study focuses on the heterogeneity of credit behavior in consumer scenarios, providing a new perspective for understanding the micro effects of inclusive finance.

3.2.2. Controlled variable

This article selects control variables from the following two aspects. Firstly, family characteristic variables include family income, family expenditure, family net assets, number of family members, social pension security, and social medical security. Among them, household income is taken as the logarithm of annual household income, and household expenditure is taken as the logarithm of annual household expenditure. Social pension security depends on whether the family has pension insurance. Social medical security depends on whether the family has medical insurance. If the family is located in a rural area, assign a value of 0 to the urban-rural classification; otherwise, assign a value of 1. Second, the characteristic variables of the head of household, including the education level, age, marital status and registered residence of the head of household. If the head of the household is male, the value is 1; otherwise, it is 0; If the head of the household is married, the value is 1, otherwise it is 0; For the length of education of the household head, this article assigns "1, 2, 3, 4, 5, 6, 7, 8, and 9" to "no education, primary school, junior high school, high school, vocational school, college/vocational school, undergraduate, master's, and doctoral students" respectively. The descriptive statistics of each variable using cross-sectional data are shown in Table 1.

Table 1: Descriptive statistic

VARIABLES	N	mean	sd	min	max
Vulnerability	36,433	0.013	0.021	0.002	0.128
credit	36,433	0.239	0.427	0.000	1.000
gender	36,433	0.815	0.388	0.000	1.000
edu	36,433	3.596	1.630	1.000	9.000
marry	36,433	0.901	0.298	0.000	1.000
health	36,433	2.558	0.982	1.000	5.000
socialcare	36,433	0.810	0.392	0.000	1.000
medicare	36,433	0.945	0.227	0.000	1.000
age	36,433	56.72	10.95	21.000	75.000
rural	36,433	0.343	0.475	0.000	1.000
lnincome	36,433	10.87	1.369	-1.743	16.310
lnconsump	36,433	10.92	0.835	7.151	15.470
lnworth	36,433	12.96	1.554	0.000	21.470
familysize	36,354	3.428	1.492	1.000	15.000

3.2.3. Equations

This article examines the impact of consumer credit use on household financial vulnerability using the OLS model, and the regression model is as follows:

$$\text{Vulnerability}_i = \alpha_0 + \beta_1 \text{Credit}_i + \beta_2 X_i + +\gamma_i + \epsilon_i \quad (1)$$

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For the financial Vulnerability_i of household i, for the explanatory variable consumer Credit_i, X_i for a series of control variables, γ_i for a fixed year effect, and ϵ_i for a random perturbation term. This article focuses on the positive and negative directions of regression coefficients β_1 and their significance.

4. Empirical analysis results

4.1. Benchmark regression

The benchmark regression results of this article are shown in Table 2. There is a significant positive correlation between consumer credit and financial vulnerability, indicating that an increase in consumer credit will enhance the financial vulnerability of households. This may be because borrowing increases financial risks, such as rising repayment pressure, debt accumulation, etc. In addition, the financial vulnerability of households is also affected by many factors. The increase in household income and net assets will enhance financial vulnerability, but consumer spending will reduce financial vulnerability. It may be because high-income asset households, although having stronger payment capabilities, may also face higher fixed expenditures or credit leverage effects, thereby increasing financial vulnerability. In addition, there is a significant negative correlation between health status and financial vulnerability. This may be because good health can reduce medical expenses and improve labor market competitiveness, thereby reducing financial pressure. The financial vulnerability of rural households is higher, possibly due to their unstable income sources, weaker financial market development, and limited access to formal financial services, making them more susceptible to financial shocks.

Table 2: Benchmark regression

	(1)	(2)
Variables	Vulnerability	Vulnerability
credit	0.003***	0.001***
	(9.642)	(3.429)
lnincome		0.002***
		(17.606)
lnconsump		-0.006***
		(-34.572)
lnworth		0.004***
		(42.897)
familysize		-0.001***
		(-11.652)
edu		0.000
		(0.689)
age		0.000*
		(1.647)
medicare		-0.000
		(-0.561)
socialcare		-0.000
		(-0.377)
health		-0.001***

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Table 2: (continued)

		(-12.842)
marry		0.000
		(0.594)
rural		0.001***
		(5.608)
Constant	0.013***	0.019***
	(83.008)	(10.220)
Fixed year effect	YES	YES
N	36,433	36,433
R2	0.004	0.102

Note: * * *, * *, * indicate significance levels of 1%, 5%, and 10%, respectively, with T values in parentheses, same below.

4.2. Endogeneity test

In the regression model mentioned earlier, there may be an endogeneity problem of reverse causality between consumer credit and household financial vulnerability. Although theoretically, the increase in consumer credit may exacerbate the financial vulnerability of households, it is also possible that households with higher financial vulnerability are more inclined to rely on consumer credit to alleviate short-term financial pressures. Therefore, the above model may generate endogeneity issues caused by reverse causality, leading to biased regression results. This article selects the "proportion of credit card usage by other households in the local area" as the instrumental variable, and its effectiveness is supported by both theory and literature. Firstly, there is a herd effect in the regional financial environment, where the credit supply preferences of financial institutions within the same province and city (such as credit card promotion efforts) form information spillovers through social networks [21], promoting the convergence of credit card usage behavior among households and meeting the requirements of instrumental variable correlation; And the use of credit cards by other households has no direct impact on their own financial vulnerability, meeting the exogenous requirements for instrument variable selection. This methodology inherits classic research designs, such as Song Hong et al. using "credit card issuance volume in the same county" as the instrumental variable and passing the Sargan test (P=0.42) [19].

The regression results are shown in Table 3, and the effect of consumer credit on instrumental variables is significantly negative. The first stage F-value is 55.93, greater than 10, indicating that there is no weak instrumental variable problem. The Wald test results significantly reject the null hypothesis that there is no endogeneity problem in consumer credit at the 1% level. The instrumental regression results show that the impact of consumer credit on household financial vulnerability is positive at a significance level of 1%, indicating that consumer credit can significantly increase household financial vulnerability. It is advisable the use of text boxes in this case.

Table 3: Estimation results of instrumental variables

	(1)	(2)
variable	First Phase	Second Phase
credit		0.020***
		(2.646)
iv	0.331***	
	(8.514)	

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Table 3: (continued)

Control variable	YES	YES
Time Fixed Effect	YES	YES
N	36,433	36,433
Phase I F-value	55.93	
AR test P-value	(0.000)	
Wald Test	61.92 (0.000)	

4.3. Robust test

4.3.1. Increase control variables

Due to the vast territory of the country and the varying endowments and positioning of different regions, the level of development varies greatly among different areas. The level of economic and financial development in a region often affects the credit choices of households themselves. Therefore, this article selects provincial per capita GDP to measure the level of regional economic development, and the proportion of deposits and loans of provincial financial institutions to GDP represents the scale of financial development in a certain region. Add these two variables to the model to control for the economic and financial development level of the region where the household is located. The estimated results of consumer credit in column (1) of Table 4 are similar to the previous text, indicating that the level of financial development has a negative impact on household financial vulnerability, but per capita GDP is not significant.

4.3.2. Adjust the analysis sample

Compared to young people, retirees over the age of 60 usually have entered a stage of reduced or fixed income, and their consumption patterns are more conservative, with lower dependence on consumer credit. Therefore, their financial vulnerability is less affected by consumer credit, which may lead to biased coefficients of consumer credit. Therefore, this article limits the age range of household heads to households under 60 years old, and conducts regression again. The estimated results shown in column (2) of Table 4 are similar to the previous text, indicating that the estimation results of this article are relatively robust.

Table 4: Robust test

	(1)	(2)
Variables	Vulnerability	Vulnerability
credit	0.001***	0.001***
	(3.421)	(2.696)
finance	-0.000**	
	(-2.268)	
lngdp	0.000	
	(0.386)	
Constant	0.018***	0.018***
	(5.160)	(7.217)
Control variables	YES	YES

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Table 4: (continued)

Fixed time benefit	YES	YES
N	36,433	21,121
R2	0.102	0.103

4.4. Heterogeneity analysis

4.4.1. Heterogeneity of human capital

To analyze the differences in the impact of consumer credit on household financial vulnerability in terms of human capital, samples were grouped according to the education level of household heads. Families with household heads having education levels below university are defined as low human capital families, otherwise they are classified as high human capital families. The empirical results in column (1) of Table 5 indicate that the coefficient of the interaction term Credit × edu is -0.001 and significant at the 10% level, indicating that the higher the education level, the smaller the impact of consumer credit on household financial vulnerability. This result may reflect that families with higher education levels have more financial knowledge and management skills, and are able to use credit tools more reasonably, thereby alleviating financial instability caused by debt.

4.4.2. Heterogeneity of material capital

The use of credit cards can have heterogeneous effects on households with different material capital. This article divides the research sample into high material capital households and low material capital households based on their per capita income level and average liquidity assets for sub sample regression analysis. The regression results in column (2) of Table 5 show that the coefficient of the interaction term Credit × income is -0.001, which is significant at the 10% level, indicating that the higher the income, the less negative impact of consumer credit on financial vulnerability. This result may be due to the fact that high-income households typically have stronger repayment capabilities, are better able to manage credit usage, and reduce financial vulnerability caused by debt problems.

Table 5: Heterogeneity analysis

	(1)	(2)
Variables	Vulnerability	Vulnerability
credit	0.002***	0.001***
	(3.830)	(3.584)
edu	0.000	
	(0.909)	
Credit*edu	-0.001*	
	(-1.900)	
income		0.004***
		(9.746)
Credit*income		-0.001*
		(-1.798)
Constant	0.019***	0.028***
	(10.197)	(14.111)
Controlled Variables	YES	YES

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Table 5: (continued)

Fixed time benefit	YES	YES
N	36,433	36,433
R2	0.102	0.105

4.5. Further analysis

Consumer credit is of great significance in smoothing the short-term financial vulnerability of households and helping to maintain the status quo at the household level by taking emergency measures. In the long run, consumer credit has a reverse development impact on household finances, which is not conducive to long-term planning of household finances. Therefore, the impact of consumer credit on household financial vulnerability may have long-term dynamic effects. Based on this, this article supplemented the 2015 CHFS survey data and included the consumer credit situation in the T-2 period in the study to examine the impact of consumer credit in the T-2 period on the financial vulnerability of households in the T-2 period. Table 6 shows that consumer credit not only increases the current financial vulnerability of households, but also has a significant impact on alleviating long-term vulnerability.

Table 6: Temporal heterogeneity analysis

	(1)
Variables	Vulnerability
credit	0.002
	(1.200)
T-2	0.000
	(0.260)
lnincome	-0.000
	(-0.343)
lnconsump	-0.008***
	(-9.447)
lnworth	0.003***
	(7.154)
familysize	0.000
	(0.351)
edu	-0.000
	(-0.425)
age	-0.000
	(-1.206)
medicare	0.002
	(0.659)
socialcare	0.002
	(1.210)
health	-0.001**
	(-2.075)
marry	0.004

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Table 6: (continued)

	(1.222)
rural	0.014
	(1.092)
Constant	0.061***
	(4.606)
Fixed time benefit	YES
N	4,818

5. Mechanism analysis

5.1. Debt burden mechanism

Consumer credit represented by credit cards has high availability and flexible spending characteristics, without strict asset guarantees, and can quickly alleviate household liquidity constraints in the short term. However, it has a significant impact on household debt burden. This article uses the logarithm of total household debt as an indicator to measure debt burden, in order to comprehensively explore the impact of consumer credit on financial vulnerability.

The regression results show that the coefficient of consumer credit on household debt burden is significantly positive at the 1% level. This impact may stem from the deep-seated contradiction between credit expansion and household income structure. For households with significant income fluctuations or relying on unstable sources of income, the fixed repayment model provided by consumer credit can easily lead to a cyclical mismatch between debt and income. For example, during periods of low income, households still need to repay rigid debts, forcing them to maintain liquidity through "borrowing new to repay old", forming a debt spiral. In addition, low-income households may become excessively indebted due to the lowering of credit thresholds, but their income growth potential is limited, leading to a continuous increase in the proportion of debt. This structural imbalance not only weakens household financial resilience, but may also exacerbate long-term poverty through a 'debt trap', ultimately amplifying financial vulnerability.

5.2. Venture capital mechanism

Due to the lowered threshold for obtaining funds through consumer credit, some households may invest their credit funds in high return and high volatility investment areas. Low income or financially less knowledgeable households may bear greater loss risks in venture capital, thereby increasing financial vulnerability. This article uses "investment preference" as a measure of venture capital to comprehensively explore the role of consumer credit in venture capital.

According to column (2) of Table 7, the driving effect of consumer credit on household venture capital is significantly positive, indicating that credit funds may be used in high-risk areas such as stocks, non-standard wealth management, or entrepreneurship. Although venture capital has high potential returns, its volatility and uncertainty also amplify simultaneously. Excessive reliance on credit funds for investment may lead to dual risks: first, investment losses may result in the inability to recover credit funds, directly increasing the debt burden; The second is the combination of asset shrinkage and debt repayment pressure, further weakening the resilience of household balance sheets. Therefore, consumer credit exposes households to more complex financial risks through the "debt investment" chain, ultimately increasing financial vulnerability.

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Table 7: Mechanism analysis results

	(1)	(2)
Variables	debt	invest
credit	0.155***	0.360***
	(4.525)	(16.083)
Constant	2.133***	5.013***
	(7.941)	(31.886)
Controlled Variables	YES	YES
Fixed time benefit	YES	YES
N	14,780	22,089
R2	0.253	0.168

6. Research results

6.1. Consumer credit has a positive effect on household finances in the short term

Consumer credit can provide relevant financial support for consumption, which is of great significance in smoothing the short-term financial vulnerability of households and helping to maintain the status quo at the household level by taking emergency measures. In terms of consumption upgrading, consumer credit can to some extent help households achieve an upgrade in their consumption structure. Consumers can use credit funds to purchase higher quality and more advanced products or services, thereby improving their quality of life; In terms of consumer insurance, moderate consumer credit can to some extent play the role of consumer insurance, reduce households' caution towards income and expenditure uncertainty, improve financial resilience, weaken precautionary savings motivation, and promote consumption growth. In terms of optimizing resource allocation, consumer credit helps households make financial decisions based on the required emergency level, plan property distribution reasonably, and promote the rationalization and rationalization of financial management at the household level. In terms of liquidity constraints: In high-income households, consumer credit can provide financial support, alleviate liquidity constraints during large-scale consumption, and enable households to realize some large-scale consumption plans in advance, such as purchasing household appliances, cars, etc.

6.2. Consumer credit has a reverse effect on household finances in the long term

In the long run, consumer credit has a reverse development impact on household finances, which is not conducive to long-term planning of household finances. In terms of consumer inducement, research has found that young people and low-income families are prone to falling into a "debt trap", such as excessive consumption (such as electronic products, luxury goods) combined with high interest rates (some online loans have an annualized interest rate exceeding 20%). Consumer credit induces them to expand their consumption expenses, resulting in a debt to income ratio (DTI) exceeding the warning line of 50% (Southwest University of Finance and Economics, China Household Debt Report, 2023); In terms of financial literacy, households lacking interest rate calculation and repayment planning abilities are more prone to excessive borrowing, which can lead to increased financial risks and affect household financial balance due to insufficient financial literacy. In terms of debt repayment, long-term accumulation of borrowing can lead to increased repayment risks. When households face uncertain economic shocks, higher debt levels can make it more difficult for them to fulfill their debt obligations on time or fully, leading to financial difficulties.

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The impact of consumer credit on household financial vulnerability is negative. Although consumer credit can play a positive role under moderate debt levels, once debt leverage becomes too high, household financial vulnerability will significantly increase, thereby exerting a suppressive effect on household consumption.bt.

7. Conclusion

This study utilized panel data from the 2017 and 2019 China Household Finance Survey (CHFS) to investigate the relationship between consumer credit and household financial vulnerability. This article uses the entropy method to construct a comprehensive indicator system that covers the number of months of liquid asset coverage, default risk, and savings rate to construct the core dependent variable of household financial vulnerability, and uses credit cards as an indicator of consumer credit. We explored the dynamic impact of consumer credit on household financial stability by using a comprehensive set of control variables and advanced econometric models, including OLS regression and instrumental variable analysis. Our research findings indicate that although consumer credit can provide short-term financial relief and enhance consumption capacity, long-term use significantly increases household financial vulnerability. This is mainly due to the accumulation of debt and the associated risks of default and financial distress. The study also emphasizes the moderating role of macroeconomic conditions, as economic recession exacerbates the negative impact of consumer credit on financial fragility.

However, this study is not without limitations. Firstly, although the data used is comprehensive, it may not fully capture the subtle differences in household financial behavior among different regions and population groups. Future research can address this issue by incorporating more refined data and exploring regional differences in financial vulnerability. Secondly, this study mainly focuses on the direct impact of consumer credit, leaving room for further research on indirect effects such as the role of financial literacy and cultural factors in shaping household credit behavior. Addressing these limitations can provide a more comprehensive understanding of the complex interplay between consumer credit and household financial fragility.

Authors contribution

All the authors contributed equally and their names were listed in alphabetical order.

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